

oxygen to fall in a range in which the concentration of said raw material is less than the concentration of the lower explosion limit of said raw material and the concentration of oxygen is not less than the limiting oxygen concentration, but excluding the concentration of said raw material of 0 vol. %.

REMARKS

Claims 1-4 were pending in the present application. Claim 4 is amended. The amendments to claim 4 involve correction of typographical errors and do not raise any issue of new matter. Therefore, entry of the present Amendment is respectfully requested. Upon entry of the present Amendment, claims 1-4 will be under examination.

CLAIM REJECTION UNDER 35 U.S.C. 112

Claims 1, 2 and 4 stand rejected under 35 U.S.C. 112, first paragraph. The Office Action asserts that "the specification, while being enabling for propane, propylene, acrolein, isobutylene, mathacrolein as a raw material, does not reasonably provide enablement for all the raw material in the chemical field." The Office Action also asserts that "the specification, while being enabling for a shell and tube reactor, as a reactor, does not reasonably provide enablement for all the reactors in the chemical field."

Applicants respectfully point out that claims 1, 2 and 4 include a recitation of "a raw material to be oxidized" in a catalytic gas phase oxidation reaction, not any "raw material" in the chemical field. Applicants contend that the specification not only provides working examples of "raw materials to be oxidized," such as propane, propylene, acrolein, isobutylene, mathacrolein, but also provides guidance and direction on how to determine whether a particular compound is "a raw material to be oxidized." For example, Figure 4 describes the oxidation profile of "raw materials to be oxidized" in the presence of oxygen, including lower explosion oxygen limit for "raw materials to be oxidized." One of ordinary skill in the art would expect that "raw materials to be oxidized" would have oxidation profiles similar to that of Figure 4. Moreover, based on the disclosure of the present application, one of ordinary skill in the art would also be

able to determine what does “a raw material to be oxidized” in the claimed process include. In addition, one of ordinary skill in the art would reasonably correlate the oxidation profiles of propane and propylene with those of all other “raw materials to be oxidized.” Therefore, the present specification provides enabling disclosure to the recitation of “a raw material to be oxidized” in claims 1, 2 and 4 because “as long as the specification discloses at least one method for making and using the claimed invention that bears a reasonable correlation to the entire scope of the claim, then the enablement requirement of 35 U.S.C. 112 is satisfied. see M.P.E.P. 2164.01(b) and *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

With regard to the Examiner’s objection to the use of the term “reactor” in claims 1, 2 and 4, Applicants respectfully point out that the present application claims “a reactor for the reaction of catalytic gas phase oxidation,” not “all reactors in the chemical field” (emphasis added). Applicants contend that the present specification provides enabling disclosure to the recitation of “a reactor for the reaction of catalytic gas phase oxidation” in claims 1, 2 and 4. Specifically, the specification provides working examples of “reactors for the reaction of catalytic gas phase oxidation” such as shell and tube reactors. It also provides guidance and direction as to what type of reactors can be used “for the reaction of catalytic gas phase oxidation.” Therefore, the present specification provides enabling disclosure to the recitation of “a reactor for the reaction of catalytic gas phase oxidation” in claims 1, 2 and 4 under the standard of M.P.E.P. 2164.01(b). Accordingly, reconsideration and withdrawal of this ground of rejection are respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. 112

Claims 1, 2 and 4 stand rejected under 35 U.S.C. 112, second paragraph as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action objects to the use of the phrases “a raw material,” “the concentration of raw material is less than the concentration of the lower explosion limit of said raw material” and “the concentration of oxygen is not less than the limiting concentration.” The Office Action also suggests the correction of typographical errors in claim 4.

As stated in Applicants' response to the enablement rejection, claims 1, 2 and 4 recite "a raw material to be oxidized," not any "raw material."

Applicants would like to direct the Examiner's attention to M.P.E.P. 2173.05(b) which states that "the meaning of a term used in the claim should be apparent from the prior art or from the specification" and "accessibility of the claimed language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification."

In this case, the meaning of the phrases "a raw material to be oxidized," "the concentration of raw material is less than the concentration of the lower explosion limit of said raw material" and "the concentration of oxygen is not less than the limiting concentration" are clear to one of ordinary skill in the art in light of the specification. Specifically, one of ordinary skill in the art would understand the term "a raw material to be oxidized" as defining those "raw materials" that can be oxidized and show an oxidation profile similar to that of Figure 4. Moreover, as defined on page 11, lines 4-7 of the present specification, the phrase "the concentration of raw material is less than the concentration of the lower explosion limit of said raw material" means "the lowest possible concentration of the raw material in the composition of the gas forming the explosion range in the oxidation profiles similar to those of Figures 1 and 4." The phrase "the concentration of oxygen is not less than the limiting concentration" is defined as "the lowest possible concentration of oxygen in the composition of the gas forming the explosion range." Furthermore, each raw material to be oxidized has its characteristic values of "lower explosion limit" and "the limiting concentration of oxygen" and one of ordinary skill in the art would clearly understand what is claimed in claims 1, 2 and 4 by using these phrases.

Therefore, claims 1, 2 and 4 are not indefinite for including these phrases. Accordingly, reconsideration and withdrawal of this ground of rejection are respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. 102(b)

Claims 1-4 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Takada et al., U.S. Patent No. 4,203,906 ("Takada").

Applicants respectfully disagree with this ground of rejection. Applicants would like to point out that the claimed invention is directed to a method of starting up a reactor for catalytic gas phase oxidation reaction and Takada does not disclose any such methods. Takada discloses a catalytic vapor phase oxidation process using a fixed bed shell and tube heat exchange type of reactor.

In contrast to the invention defined by the present claims, Takada does not disclose any step of "causing said raw material and said molecular oxygen-containing gas to pass a range in which the concentration of said raw material is less than the concentration of the lower explosion limit of said raw material and the concentration of oxygen is not less than the limiting oxygen concentration, as defined by the present claims." Furthermore, Takada is concerned with the steady state reaction and it is different from starting up a reaction as defined in the present claims as described on page B. Accordingly, the claimed method seeks to avoid explosion in starting a catalytic gas phase oxidation reaction by supplying to the reactor a raw material to be oxidized and a molecular oxygen-containing gas in starting the reaction. Moreover, there is no teaching or suggestion in Takada of controlling conditions of a raw material and a molecular oxygen-containing gas in the start up of a reactor and the advantages associated therewith. Therefore, Takada does not anticipate claims 1-4 because Takada does not disclose each and every element of these claims. Accordingly, reconsideration and withdrawal of these ground rejections are respectfully requested.

CONCLUSION

In view of the remarks and the amendments, Applicants believe that various rejections should be withdrawn and favorable consideration be given to the present application and a Notice of Allowance be issued with regard to claims 1-4.

It is believed that no fee is required in connection with the filing of the present Amendment. However, if any fee is required, the Commissioner is authorized to charge such fee or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES

4. (Amended) In a process of production including a step for the reaction of catalytic gas phase oxidation induced by supplying at least a raw material to be oxidized and a molecular oxygen-containing gas to a reactor for catalytic gas phase oxidation and a step of absorption, a method for preparing said feed raw material, characterized by supplying the discharged gas obtained at said step of absorption to said reactor thereby causing the concentration of ~~said raw material~~ of said raw material and the concentration of oxygen to fall in a range in which the concentration of said raw material is less than the concentration of the lower explosion limit of ~~said raw material~~ of said raw material and the concentration of oxygen is not less than the limiting oxygen concentration, but excluding the concentration of said raw material of 0 vol. %.